



HM TREASURY

Climate Change Plan



March 2010



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Foreword

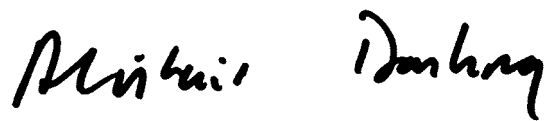
The UK continues to lead the way as part of the global effort to avoid dangerous climate change, with the aim of achieving a legally binding agreement as soon as possible. Part of this leadership role involves demonstrating to the rest of the world that low-carbon growth is not only possible, but profitable.

The world's first carbon budgets, announced at the Budget in 2009, were a major step along this path. Based on the plans set out in The UK Low Carbon Transition Plan, we are on track to exceed the carbon budget target to reduce emissions by 34 per cent by 2020.

At the same time, the UK is well-placed to take advantage of the huge opportunities from a low-carbon future. Continued Government support for financing of low-carbon investments and job creation in green industries, means that we are already a world leader in several key low-carbon sectors.

But we should not underestimate the scale of the challenge in moving to a low-carbon economy. It requires strong co-ordinated action by Government to ensure that every sector of the economy plays its role. We must also prepare for a changing climate in this country. Adaptation incurs upfront costs but it also reduces the damage and disruption caused by climate change. It offers opportunities to adjust economic activity or even expand into new areas. The climate change plans published today by all major Government departments demonstrate that we are rising to these challenges.

This plan shows how the Treasury will be at the heart of the transition. Through the spending control and Public Service Agreement frameworks we will help to drive delivery of emissions reductions, in support of the carbon budget management system. We will ensure that climate risks are taken into account when Government makes investment decisions. And we will continue to lead by example in reducing emissions from our own buildings and travel. In doing so, we are laying the foundations for sustainable long-term growth.



Rt Hon Alistair Darling MP
Chancellor of the Exchequer

1 Introduction

1.1 Climate change is one of the most critical challenges facing the world today. The evidence that human actions are changing our climate is compelling and the risks of unmanaged climate change are huge.

1.2 The impacts of climate change are already being felt, through changed weather patterns and environmental changes, particularly in polar regions. If global action is not taken to reduce emissions, the social, environmental and economic impacts of climate change could be devastating. Rising sea levels could threaten small island states and put millions at risk of increased flooding. At the same time, changing precipitation patterns would put certain areas at increased risk from severe water shortages and drought. Risks of food shortages and the spread of disease are commonly predicted. Significantly, the effects of climate change are likely to be felt most strongly in the poorest regions of the world.

1.3 The Government's goal is to stabilise atmospheric greenhouse gas concentrations to avoid dangerous climate change, and to adapt to the climate change that is now inevitable. The Copenhagen Accord, now signed by over 100 countries, calls for the global temperature rise to be kept below two degrees Celsius. The Government is now working to operationalise the Accord, to ensure that the world makes the significant reductions in emissions over the coming decades required to achieve this goal.

The Climate Change Act and Adapting to Climate Change Programme

1.4 The Climate Change Act 2008 created a new approach to managing and responding to climate change in the UK. The first of its kind anywhere in the world, the Act set not only a long-term target to

reduce the UK's greenhouse gas emissions to at least 80 per cent below 1990 levels by 2050, but also a legally binding trajectory toward this target in the form of five year 'carbon budgets'.

1.5 The Act also enhances the UK's ability to adapt to the impact of climate change, establishing that a UK wide climate change risk assessment must take place every five years; a national adaptation programme must be put in place and reviewed every five years; and the Government has the power to require public authorities and statutory undertakers to report on how they have assessed the risks of climate change to their work, and what they are doing to address those risks.

1.6 At Budget 2009, the Government announced it was setting the first three carbon budgets – covering the period from 2008-22 – at levels requiring a 34 per cent reduction in emissions by 2020 compared to 1990. These targets came into force on 1 June 2009. In *The UK Low Carbon Transition Plan* published in July 2009, the Government set out its strategy to meet the budgets.

1.7 At the same time, *The UK Low Carbon Transition Plan* allocated UK government departments their own departmental carbon budgets, to ensure that every part of government will help to drive the transition to a low-carbon economy. These budgets reflect departments' influence on reducing emissions across the economy as well as emissions from their own estate and operations. All departments committed to producing a carbon reduction plan, detailing how they will achieve their carbon budgets.

1.8 The Government's Adapting to Climate Change (ACC) Programme brings together the work being led by the Government and the wider public sector

on adapting to climate change. The Programme's objectives include developing a more robust and comprehensive evidence base about the impacts and consequences of climate change; raising awareness of the need to take action; and working across government at the national, regional and local level to make sure the need to adapt to climate change is embedded into government policies, programme and systems.

1.9 As part of the latter objective, each government department committed to produce a high level adaptation plan, focusing on the key policy areas and activities likely to be significantly impacted by climate change and which require action.

1.10 This climate change plan fulfils both commitments by describing HM Treasury's departmental carbon budget and how we expect to meet it, and summarising our action on adaptation. It describes how the Treasury will play a central role in the departmental carbon budget system, in keeping with its role at the centre of government. The plan covers the policies and responsibilities of the Treasury Group – HM Treasury (with its independent office, the Office of Government Commerce (OGC)) and its executive agencies: the Debt Management Office, Buying Solutions and the Asset Protection Agency.¹

The Treasury's approach to climate change

1.11 As the Government's finance and economics ministry, the Treasury has two departmental strategic objectives:

1. maintaining sound public finances; and
2. ensuring high and sustainable levels of economic growth, well-being and prosperity for all.

1.12 A key outcome underpinning these strategic objectives is protecting the environment in an economically efficient and sustainable way. This

reflects the findings of *The UK economy: analysis of long-term performance and strategic challenges*², which identified environmental change, particularly climate change, as one of the key trends that is likely to have a significant impact on the economy in the long-term.

1.13 Climate change demands urgent and co-ordinated global action. The Stern Review found that stabilising greenhouse gas concentrations at levels low enough to avoid the worst impacts of climate change would require rapid and substantial reductions in global emissions.³ The Review concluded that the benefits of this strong and early action far outweigh the costs. Further, the Review found that an adaptation strategy is crucial for dealing with the unavoidable impacts of climate change, as it is the only response available for the impacts that will occur over the next several decades before mitigation measures can have an effect.

1.14 The Treasury has a key role in ensuring climate change is tackled as cost-effectively as possible, contributing to sustained and sustainable growth. This will be achieved by efficient reduction of global emissions through an international deal and global carbon market: a well-designed carbon market could reduce the costs of addressing climate change by up to 70 per cent.⁴ The Treasury also ensures domestic policies on both mitigation and adaptation are effective, efficient, value for money, and affordable within overall fiscal constraints, including through appropriate use of fiscal instruments.

The role of the Treasury in delivering carbon budgets

1.15 *The UK Low Carbon Transition Plan* announced that the Treasury would play a key role at the heart of the carbon budget system. This plan explains that this role involves:

¹ For the purposes of this plan, National Savings and Investments and the Royal Mint do not form part of the Treasury Group.

² *The UK economy: analysis of long-term performance and strategic challenges*, HM Treasury (2008).

³ Stern Review: The economics of climate change, HM Treasury (2006)

⁴ Global Carbon Trading: A framework for reducing emissions, Mark Lazarowicz MP (2009).

- helping to make the right policy choices;
- supporting efficient delivery across government: working with other government departments;
- working towards an international deal to reduce emissions;
- integrating climate change into fiscal and economic policy;
- providing leadership on delivery of sustainability targets and sustainability reporting across government; and
- reducing the Treasury's own carbon footprint: delivering its carbon budget.

1.16 The following two chapters of this plan describe these roles in more detail: Chapter 2 details the Treasury's wider role while Chapter 3 focuses on how we will deliver reductions on our own estate and operations to meet our carbon budget.

The role of the Treasury in adapting to climate change

1.17 The Treasury is also committed to playing a central role in helping the UK to prepare and adapt to changes in the climate. This plan outlines the Treasury's objectives to:

- determine and minimise overall costs to the economy for consumers and business of maintaining sufficient levels of long-term adaptation; and to create conditions to promote opportunities and minimise costs for specific sectors, including the financial services sector for which the Treasury has special responsibility;
- Ascertain and minimise likely impacts on the public finances of longer-term risk management requiring investment in construction and maintenance of common infrastructure; and from the need to provide assistance to households and businesses due to extreme climate events; and
- ensure value for money in public expenditure by requiring climate vulnerability to be taken into account in planning and financial decisions made by the Government, including procurement processes and developing and maintaining its estates.

1.18 Chapter 4 outlines the challenges that climate change impacts present to the economy and the public finances and considers the underlying evidence base, while Chapter 5 describes the roles and responsibilities for the Treasury in UK adaptation policy, how the Treasury is building departmental capability to deal with adaptation policy issues and how climate change impacts are taken into account on its own estate.

Treasury's delivery framework

1.19 The Treasury Minister responsible for climate change and adaptation issues is the Exchequer Secretary. In 2008 Treasury established an internal Treasury Environment Network (TEN), to strengthen the department's capability and consistency of advice on environmental policy, and to monitor and report performance on the environmental DSO outcome. This cross-cutting virtual environment directorate brings together Treasury's interests on climate change and environmental policy, and is led by the Director, Public Services and Environment.

1.20 TEN reports monthly to the Environment Steering Group, chaired by the Director, Public Services and Environment, which oversees progress against the environment DSO and provides strategic direction and challenge to the network.

1.21 The Director, Public Services and Environment is also the Senior Responsible Owner for the Treasury's Carbon Reduction Delivery Plan and Departmental Adaptation Plan. He is responsible for overseeing delivery of the Treasury carbon budget and action on adaptation, and for reporting to the department's management board on progress. He is supported in this role by TEN policy teams, and estates and procurement teams within the Corporate Services Directorate.

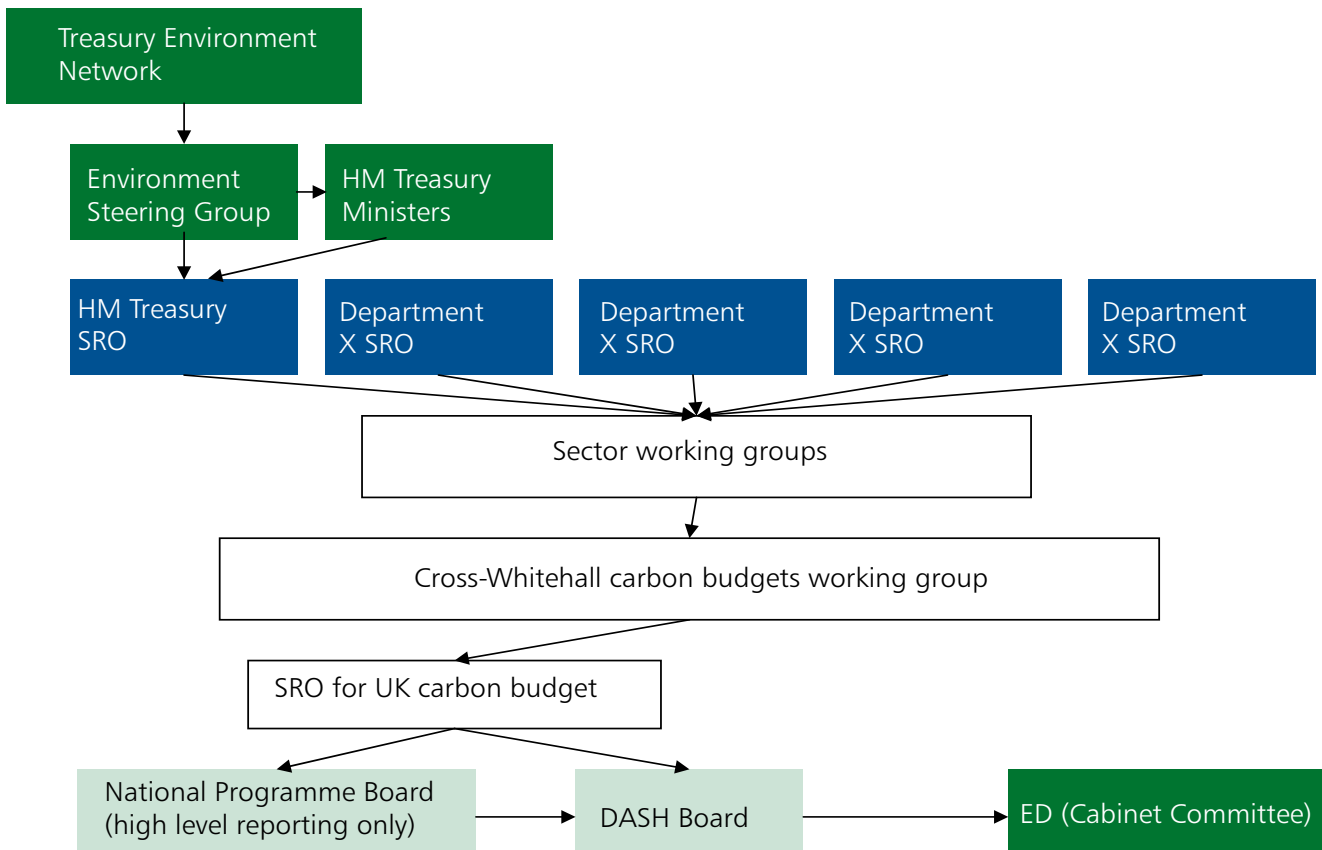
1.22 The Treasury will report quarterly progress against its carbon budget to the OGC, through the existing mechanisms for reporting against the Sustainable Operations on the Government Estate (SOGE) targets. This information is available on the OGC website. The OGC will continue to publish an annual report summarising all departments’ progress in December.

1.23 The Treasury will provide updates on progress on its adaptation actions to the Defra ACC Programme Team, who will co-ordinate an annual report to Cabinet, through the Economic Development (Energy and Environment) Committee. The Team will also publish an annual update on the ACC website. Updates will comprise a self-assessment of progress against actions and milestones, with refreshed actions where new priorities have been identified during the year.

Working with others across government

1.24 The Treasury works closely with others in government to support the development and delivery of climate change and energy policy, and in this role contributes as a delivery partner to *PSA 27 Lead the global effort to tackle dangerous climate change*. The Treasury is a member of the Delivery And Strategy High-level (DASH) Board, which oversees delivery of PSA 27, as well as the National Climate Change and Energy Programme Board, the International Climate Change and Energy Programme Board, the Domestic Adaptation Programme Board, and the cross-departmental Carbon Budgets Working Group. The Treasury is also a member of all sector working groups that have been established to ensure delivery of emissions reductions through collaborative working.

1.25 A diagram of how the Treasury’s internal governance structures link to the wider government carbon budgets governance structures is set out below:



2 The Treasury's role in delivering carbon budgets

2.1 The Treasury is the UK's economics and finance ministry, responsible for developing and implementing the Government's financial and economic policy. Its aim is to raise the rate of sustainable growth, and achieve rising prosperity and a better quality of life with economic and employment opportunities for all.

2.2 The Treasury works with and through a wide range of stakeholders to achieve its objectives. In its finance ministry role, the Treasury works with other government departments to maintain control of public spending and to improve financial management capability in government. In its economic ministry role, it works through other government departments to develop policies to advance growth in the UK, raise productivity and promote opportunity, social justice, stability and security for all, in the UK, Europe and internationally.

2.3 The Treasury will use its cross-cutting role at the centre of government to support departments in delivering the UK carbon budget. It will also continue to consider how fiscal instruments can contribute to meeting carbon budgets, and work towards cost-effective international action to reduce emissions through a global carbon market. Through the OGC, the Treasury provides leadership on delivery against the sustainability targets relating to the Government's own estate and procurement activities (including the own estate portion of departmental carbon budgets). These roles are set out more fully below.

Making the right policy choices

2.4 The Government is committed to a policy framework that adopts the most cost-effective ways to reduce emissions. This will minimise the economic

cost of meeting UK emissions targets and also minimise the impact on the public finances.

2.5 To ensure that the UK's carbon budgets and long-term 2050 target are met in an efficient way, the Government has adopted the three pillars for policy action set out in the Stern Review:¹

- pricing carbon through trading, tax or regulation – incentivising low-carbon investment choices in the private sector and ensuring that emissions reductions are delivered in the most cost-effective way;
- supporting investment in low-carbon technologies and infrastructure; and
- tackling barriers to action, including policies to encourage long-term behavioural change and energy efficiency.

2.6 As the UK's economics and finance ministry, the Treasury plays a key role in ensuring the cost-effectiveness, efficiency, equity, and fiscal sustainability of the overall policy approach to meeting carbon budgets, working closely with policy officials in other government departments.

2.7 Consumer-funding mechanisms, such as the Renewables Obligation or Feed-in Tariffs, are becoming an increasingly important part of the climate change policy framework. These policies involve subsidising low-carbon energy investments through implicit or explicit levies, usually falling on energy supply companies, who then pass the costs through to consumers through higher bills. The Treasury has a role in agreeing the level of support through such mechanisms, because they generally

¹ *Stern Review: The economics of climate change*, HM Treasury (2006).

amount to new tax and spending commitments. This is in order to:

- maintain fiscal control and credibility by taking account of the wider fiscal position and judgment;
- ensure that the mechanisms offer maximum value for money;
- understand the overall economic and distributional impacts of tax and spending policies; and
- make the right trade-offs across government priorities.

Role of taxation

2.8 The Treasury is responsible for formulating the Government's tax policy. Environment and transport taxes can play a significant role in reducing carbon emissions, but also need to meet the principles of good taxation. Taxes and trading schemes are considered as one option alongside a range of other policy options such as regulation, information, public spending, tradable permit schemes and voluntary agreements.

2.9 Environment taxes and other economic instruments are particularly effective in correcting market failures where there are negative externalities that are not currently reflected in prices. For example, setting a carbon price, the key policy instrument for tackling climate change, can be done implicitly through regulation, or explicitly through tax or emissions trading. Explicit pricing is generally more efficient as it allows businesses that can cut emissions most cheaply to undertake most of the effort. It also provides a continuous incentive for businesses to invest in low-carbon technologies, rather than only providing an incentive up to a specific standard.

2.10 Policy in this area is guided by three of the outcomes under the Treasury's Departmental Strategic Objectives:

- protecting the environment in an economically efficient and sustainable way;
- ensuring that the tax yield is sustainable and risks managed; and

- promoting the efficiency and fairness of the tax system.

2.11 As such the Treasury aims to develop tax options that support the Government's environment policy, while maintaining sound public finances. Tax policy changes already announced will save around 3 MtCO₂ in 2013-14, mainly through increases in fuel duty, air passenger duty and landfill tax, helping the UK meet its carbon budgets.

2.12 The Treasury has set out its strategic approach to environmental taxation before:

- *Statement of Intent on Environmental Taxation* (1997) – stated that the Government would aim to reform the tax system to shift the burden of tax from 'goods' (e.g. employment) to 'bads' (e.g. pollution). It also made clear that environmental taxation must meet the tests of good taxation (e.g. economic efficiency and fairness, maintaining long-term sustainability of public finances; deliverability and effective risk management).
- *Tax and the Environment: Using Economic Instruments* (2002) – set out the framework for using the tax system – as part of a wider range of instruments to contribute to an effective environmental policy. This set out the importance of implementing the 'polluter pays' principle, whilst also making sure that actions to protect the environment also support wider efforts to progress the Government's main economic objective of strong and stable economic growth.
- In the 2005 Pre-Budget Report, the Government reiterated its commitment to this framework by setting out its Principled Approach, which distils the key criteria for environmental tax strategy going forward.

2.13 An overview of current environment taxes is set out in Table 2.A, including their role in helping the UK meet its carbon budgets. The Treasury will continue to explore the use of economic instruments to achieve climate change goals, in the context of other long-term fiscal, economic and social objectives.

Table 2.A: Environment taxes

Tax	Revenue 2008-9	Rationale and Reform	Action to meet carbon budgets
Power and heavy industry			
EU Emission Trading System (EU ETS)	£400 million*	<p>EU ETS covers heavy industries and power generators, which are responsible for around half of EU emissions.</p> <p>The UK is one of the few countries to hold regular carbon auctions. Up to 10 per cent of UK emissions allowances will be auctioned during Phase II of the EU ETS – running from 2008 to 2012.</p>	The EU ETS is expected to deliver annual carbon savings of 51MtCO ₂ in 2020 for the UK – a reduction in the emissions of the power sector and heavy industry of 22 per cent on 2008 levels.
Climate change levy (CCL)	£700 million	Tax on business and public sector energy consumption to encourage the efficient use of energy. Since 2007 CCL has increased in line with inflation every year. In PBR 09 it was announced that the reduced rate of CCL available to participants in the climate change agreements (CCAs) scheme would increase from 20 to 35 per cent in April 2011.	Budget 2009 announced the extension of the CCL exemption for indirect sales of CHP electricity to 2023, subject to State aid approval. In 2010, the levy is estimated to have reduced energy demand in the business and public sector by around 15 per cent and going forward will deliver emissions reductions of 12.8 MtCO ₂ per annum.

* This represents all revenue generated through the auctioning of EUAs to date. Auctioning began in November 2008.

Tax	Revenue 2008-9	Rationale and Reform	Action to meet carbon budgets
Homes and communities / Workplaces and jobs			
Tax reliefs	N/A	<p>Certain energy-saving and water-efficient plant and machinery qualify for 100 per cent enhanced capital allowances (ECAs), offering purchasers of this equipment the ability to deduct the full cost from their corporate tax liability in the first tax year.</p> <p>Reduced rates of VAT (5 per cent) apply to the professional installation of certain energy saving materials within homes, including insulation and some microgeneration.</p> <p>To overcome the lack of incentives for landlords to invest in energy efficiency, the Landlords Energy Saving Allowance allows landlords to deduct up to £1,500 per house from their taxable property income for the cost of installing specified energy saving items.</p>	Small reductions in carbon dioxide emissions.
Waste			
Landfill tax	£955 million	Landfill tax increases the price of disposal to landfill, encouraging investment in environmentally sustainable waste management options higher up the waste hierarchy such as recycling, reuse, and recovery of energy from waste (e.g. incineration and anaerobic digestion.)	Budgets 2009 and 2010 announced increases to the standard rate of landfill tax of £8 per tonne on 1 April each year from 2011 to 2014 respectively.

Transport taxation

2.14 Transport plays a vital role in supporting economic growth but can also have adverse environmental impacts. The Government is committed to moving towards a low-carbon transport system, through supporting the development of green technologies and providing the right signals to allow

consumers to make efficient choices.² The Treasury continues to work with the Department for Transport to achieve these goals, and is also responsible for transport tax policy. While the principal purpose of transport taxes is to support the public finances and raise funds for public services, where possible and appropriate it is right for the revenue-raising taxes to support environmental objectives.

Table 2.B: Transport taxes

Tax	Revenue 2008-9	Rationale and Reform	Action to meet carbon budgets
Fuel duty	£24.6 billion	Fuel duty has increased on a number of occasions since 1997 and as of September 2009, stands at 56.19 pence per litre (ppl) for petrol and diesel. It will increase to 57.19 ppl on 1 April 2010.	Budget 2009 announced that – to support fiscal consolidation – fuel duty would increase by 1 ppl in real terms, each April from 2010 to 2013. Budget 2010 announced that the 2010 increase would be staged in three parts, and fuel duty would also rise by 1ppl in real terms in 2014. Increases from 2010 to 2014 are estimated to save 1.7MtCO ₂ per year in 2014.
Vehicle excise duty (VED)	£5.6 billion	In 2001, VED was placed on a CO ₂ basis, with the tax that a car pays determined by its CO ₂ emissions. In April 2009 the number of VED bands was increased to 13.	From April 2010 new first-year rates of VED will be introduced, to provide a stronger signal at the point of purchase. Cars emitting under 130g CO ₂ per km will pay nothing in the first year, whereas cars emitting over 255g CO ₂ per km will pay £950.
Company car tax* (CCT) and Fuel benefit charge	£2.3 billion*	CCT was reformed in 2002, so that the amount paid depends upon the CO ₂ emissions of a vehicle.	In 2010, 2011 and 2012, CCT thresholds will fall by 5g CO ₂ per km in response to advances in fuel efficiency. From April 2010, zero-emission vehicles will be exempt, and ultra low-carbon vehicles subject to a 5 per cent rate of CCT for five years.
Capital allowances for vehicles	n/a	In April 2009 the capital allowance treatment for business cars was also placed on an emissions basis, and there is a 100 per cent first-year allowance for cars with CO ₂ emissions not exceeding 110g CO ₂ per km.	From April 2010, a 100 per cent first-year allowance will also be introduced for electric vans.
Air passenger duty	£1.9 billion	APD was reformed in November 2009, increasing the number of distance bands from two to four, to better reflect the environmental impact of flying.	The reform and announced rate increases in November 2009 and 2010 will help lead to savings of 0.6 MtCO ₂ per year by 2011-12.

*Not a separate tax but a benefit-in-kind incurred under income tax and national insurance contributions, when an employer provides a company to an employee for their personal use. As benefit-in-kind charges are reported separately, latest figures are for 2007-08.

Supporting efficient delivery of carbon budgets and energy policy across government

Driving delivery across government

2.15 The Treasury oversees the framework for the planning, control and reporting of public spending, and as such acts as a critical driver of delivery and improvement in outcomes across government.

2.16 2007 CSR set out a reformed cross-government framework for performance management and delivery across government, in the form of new Public Service Agreements (PSAs). The Treasury oversees this framework, working with departments to agree the PSAs, that summarise priority outcomes the Government wants to achieve in the next spending period. These include PSA 27 – *Lead the global effort to avoid dangerous climate change*, which sets out agreed objectives detailing the outputs and outcomes departments are expected to deliver on climate change with the resources allocated to them. The Prime Minister's Delivery Unit, which sits within the Treasury, is responsible for supporting, monitoring and challenging progress by departments on the climate change PSA, and reporting on progress to the Prime Minister and Chancellor.

2.17 The next Spending Review will set departmental budget allocations for the coming years. As part of this process, the Treasury will help to ensure that departments plan for and allocate sufficient resource to delivery of carbon budgets, through the next Spending Review and beyond. As part of bids to the next Spending Review, departments will be expected to include their plans to deliver their departmental carbon budgets. Alongside other cost pressures and opportunities for savings, the Treasury will take account of the likely cost to departments of delivering carbon budgets and the savings that can be generated through low-carbon activity, such as improved energy and resource efficiency. The Treasury will also encourage departments working through devolved

delivery chains to link capital budget allocations to performance on emissions reductions.

Energy market framework

2.18 The Treasury works closely with the Department for Energy and Climate Change (DECC) to ensure the energy market and policy framework supports the necessary investment in low carbon technologies and delivers secure and affordable energy supplies. The Treasury is working with DECC to ensure these frameworks can best support the long-term transition to a low carbon energy mix and ensure a fair deal for consumers. Interim findings of this work were published at Budget 2010. At Budget, the Government committed to bring forward proposals for changes to the current energy market framework for consultation, and to make final decisions in Spring 2011. The Treasury will continue to work closely with DECC on the second phase of this project.

Working towards an international action to reduce global emissions

2.19 The UK's priority is to agree an ambitious, effective and fair global deal that ensures global emissions start to decline by 2020 and fall to at least 50 per cent below 1990 levels by 2050. This will put the world on a path to limiting temperature rises to less than two degrees Celsius. The Treasury works jointly with other government departments to deliver the UK's contribution to this goal, especially to ensure that policies are well-designed from an economic perspective and fiscally affordable.

2.20 The UK has been instrumental in delivering progress on international climate change. Copenhagen was an important and necessary step forward: the Copenhagen Accord agrees to take action to hold the increase in global temperatures below 2 degrees and includes signatories from over 100 developed and developing countries. The UK continues to show global leadership by committing to reduce emissions by at least 34 per cent by 2020 on 1990 levels, and more if the EU moves to a

30 per cent target by 2020, in the event of similarly ambitious commitments from other countries.

2.21 The Accord also provides finance to help developing countries tackle and adapt to climate change. Developed countries will start by providing \$30 billion of fast start public finance between now and 2012, including £1.5 billion from the UK as part of an overall EU contribution of \$10 billion. The Accord also sets a goal for public and private flows of climate finance to developing countries to reach \$100 billion per year by 2020. The Prime Minister will co-chair, with Prime Minister Meles of Ethiopia, a high-level advisory group, which will look at ways of meeting this 2020 goal. The Treasury works in conjunction with the Department for International Development (DfID) and DECC towards the effective delivery of these funds to ensure they deliver real results on the ground.

2.22 Globally, carbon markets provide a means for minimising economic costs by ensuring that reductions take place in the most cost-effective locations worldwide. Emissions trading schemes such as the EU Emission Trading System enable companies to choose whether to reduce their own emissions or invest in emissions reductions overseas. A well-designed and expanded global carbon market could reduce the global costs of addressing climate change by up to 70 per cent, and in the context of an ambitious deal, could generate significant financial flows to developing countries.

2.23 In line with its commitment to expanding the global carbon market, the UK is the only EU country to hold regular carbon auctions under Phase II of the EU Emission Trading System. To date UK auctions have raised over £350 million, providing support to fund government spending priorities, including on the environment. London is the global centre of the carbon market: eighty seven per cent of all international carbon trading now occurs in London.

Integrating climate change into fiscal and economic policy

2.24 *The UK economy: analysis of long term performance and strategic challenges* identified environmental change, particularly climate change, as one of the key long-term economic trends that will shape the UK economy in the future. Moving to a low-carbon economy will create opportunities to be exploited as well as challenges to be met, requiring the UK economy to be flexible and innovative.

Understanding economic impacts of climate change policy

2.25 The Treasury has led extensive work to assess and understand the economic and fiscal impacts and opportunities of climate change and policy action to tackle the issue. In 2006, the Treasury commissioned the Stern Review³ on the Economics of Climate Change, the most comprehensive review ever carried out on the economics of climate change, led by Lord Stern, then Head of the Government Economic Service and former World Bank Chief Economist. The Review estimated that the economic cost of action to tackle climate change could be limited at 1 to 2 per cent of world GDP. This is significantly less than the global cost of uncontrolled climate change, which the Review estimated to be between 5 per cent and 20 per cent of annual world GDP – it has since been suggested that this cost could be higher still. Chapter 4 sets out more detail on potential impacts within the UK.

2.26 From a domestic perspective, *The UK Low Carbon Transition Plan* estimated that meeting the UK's target of 34 per cent reduction in emissions by 2020 would reduce the level of GDP by about 0.35 per cent in 2020.⁴ Treasury is continuing to work on integrating the impacts of climate change policies into its near-term economic growth and fiscal forecasts.

³ *Stern Review: The economics of climate change*, HM Treasury (2006).

⁴ *The UK Low Carbon Transition Plan*, HM Government (2009).

2.27 Alongside the 2009 Pre-Budget Report the Treasury published its *Long-term public finance report: an analysis of fiscal sustainability*, which for the first time explicitly set out projections for the impacts of the costs of tackling climate change on the public finances. This concluded that while policy to reduce emissions is likely to have economic implications, the indirect pressure on the public finances through its effect on economic growth is likely to be modest.

Exploiting opportunities for economic growth

2.28 While tackling climate change has economic impacts, it also brings significant opportunities for future business growth, and the potential to be a world leader in the low-carbon and environmental sectors, estimated to be worth £3 trillion globally. Changes in the relative prices of carbon and energy-intensive goods will alter household and firm consumption decisions in favour of less energy intensive or lower-carbon options. This stimulus to demand for low-carbon goods and services will lead to a shift in production and employment away from carbon or energy intensive goods and towards cleaner, low-carbon goods and services.

2.29 This transition to a low carbon economy in the UK will continue to drive innovation, as will the economic opportunities arising from expanding global markets, and the Government is already doing much to stimulate this, for example through the provision of Enhanced Capital Allowances for energy efficient goods and the SME tax credit scheme. This requirement to innovate, driven by climate policy and commercial opportunity, is already stimulating research and development in low-carbon technologies; and the deployment of mature low-carbon technologies could potentially lead to a new wave of innovation as production and services adjust to take advantage of the new opportunities offered by these technologies. This innovation-led technological change could drive job creation (it is estimated that the sector could increase

by 45 per cent on today's levels by 2015)⁵ and productivity improvements, underpinning long-term economic growth that in turn is vital to maintain the sustainability of the public finances.

2.30 The Treasury has a central role in ensuring that the UK harnesses the benefits of the low carbon economy for future growth. Budget 2009 and the 2009 Pre-Budget Report announced £1.8 billion in support for low-carbon sectors, driving low-carbon investment across the economy, and supporting future growth. This included setting up Infrastructure UK (IUK) to leverage further investment in low carbon projects and help the Government to develop a national infrastructure that competes internationally, underpins economic growth, and attracts investment. Already, measures introduced by the Government since September 2008, could support over £15 billion additional investment in low carbon and energy sectors over the next three years.

Leadership on sustainability

2.31 The OGC is an independent office of the Treasury, with responsibility for leading on delivery against the environmental targets relating to Government's own estate and procurement activity. The role of Chief Sustainability Officer was established within OGC in 2008 to provide leadership on delivery across government, supported by a Centre of Expertise in Sustainable Procurement (CESP). The team is geared to helping the Government achieve its targets for sustainable procurement and operations on the government estate, and in general to improving sustainable procurement and operations practice across central government. For example, OGC has modified its e-PIMS database to enable departments to move to quarterly collection of sustainability data, allowing more timely and effective management of performance.

⁵ *Low Carbon and Environmental Goods and Services: an industry analysis*, Innovas (2009).

2.32 Other parts of the OGC also play a key role, including the Government Estate Transformation team, which ensures sustainability is embedded in the strategic management of departments' property, and Procurement Policy, which supports departments in taking account of environmental, social and economic sustainability in their procurement decisions. In the 2009 Pre-Budget Report the Government announced that resource efficiency focusing on carbon reduction would be one of its three priority policies to be delivered through procurement, and in January 2010 the Government published a Policy through Procurement Action Plan setting out how it would deliver these priorities.

2.33 In August 2008 the Government published a Delivery Plan that brought together all its commitments to achieve sustainability across procurement activity and the operations of its estate. It also detailed the actions that the Government would take to ensure these targets are met. CESP reports progress against the Delivery Plan in six-monthly updates, and sets out the priorities for helping to meet the targets.

2.34 The latest Delivery Plan Update shows excellent progress during 2008/09, particularly in reducing emissions from government offices – the Government is now on track to exceed its target of reducing emissions by 12.5 per cent by 2010-11 relative to 1999-2000 levels. Reducing total emissions will remain a key priority going forward: the Update highlights plans for a programme of improvements to support achievement of the targets for Sustainable Operations on the Government Estate (SOGE).

Energy efficiency in the wider public sector

2.35 The 2009 Pre-Budget Report underlined the Government's commitment to showing public sector leadership on green house gas emissions, announcing that the Government will aim to achieve savings of £300 million per year by 2012-13 through improving energy efficiency across the public sector, cutting energy bills by around 10 percent and contributing to climate change goals.

2.36 To support delivery of this objective, Budget 2010 announced that the Government would extend the scope and remit of the Chief Sustainability Officer and OGC's CESP to provide leadership, challenge and support to the wider public sector on energy efficiency, working with existing delivery bodies to ensure a coordinated approach. This is a natural fit with OGC's existing roles in reducing central government departments' environmental impacts, driving value for money across the public sector through collaborative procurement of energy and supporting the development of regional strategies for the sustainable management of estates assets.

2.37 Working closely with Treasury and DECC, OGC's new role will be to ensure energy efficiency is a priority across the public sector and coordinate the delivery of support to overcome the common barriers which prevent energy savings potential being realised, including:

- leadership – by engaging the professional commercial and estates communities so they understand the financial risks of inaction and ensure they prioritise energy saving through clear performance management incentives;
- access to capital budgets – by requiring departments to include plans to deliver departmental carbon budgets in their bids to the next Spending Review, and encouraging them to link capital allocations to their delivery bodies to energy performance; and
- skills and capacity – by bringing together the collected expertise and knowledge on best practice and innovation in the public sector and ensuring it is shared more effectively through the development of standard tools and frameworks.

2.38 In the medium term this programme will look to drive large scale investment and retrofit of the public sector estate through new and existing contracts (including in facilities management) and leveraging private sector expertise to deliver guaranteed savings for the public sector through energy performance contracts.

2.39 OGC, Treasury and DECC will not be able to deliver this alone – other lead bodies in the public sector will need to engage and collaborate on this programme if energy efficiency is to be embedded across the estates and procurement professions. An update on progress will be reported in the next Government Delivery Plan Update.

Sustainability reporting in the public sector

2.40 To help drive improvements in environmental sustainability across the public sector, the Treasury is leading work on developing a model for reporting sustainability by the public sector, working closely with OGC, DECC and Defra. The Treasury is proposing to mandate the introduction of sustainability reports within central government Annual Reports and accounts from 2011-12, with a dry run from 2010-11. The reporting requirement, covering greenhouse gas emissions, waste minimisation and management and the use of finite resources, will be aligned with the revised SOGE reporting requirements. Greater transparency and accountability on environmental sustainability should lead to reduced use of environmental resources and reduced costs.

3 Delivering the Treasury's carbon budget

The Treasury's carbon budget

3.1 The Treasury is committed to delivering real emissions reductions on its own estate, and has a strong track record in making significant reductions over the last decade, as part of a wider effort to improve environmental sustainability.

3.2 The Treasury's main measured sources of carbon emissions are from its estate and travel. The former arise through the consumption of electricity, used of gas for heating and from a small amount of oil use for back-up electricity generation. At 1 Horse Guards Road, heating is provided from the Combined Heat and Power Plant (CHP) of the Whitehall District Heating system and the excess electricity generated from burning gas is sold to the National Grid. Travel emissions are from air, train and car journeys.

3.3 The Treasury group for carbon budget purposes comprises HM Treasury (including OGC, an office of HM Treasury), Buying Solutions (an executive agency of OGC), the Debt Management Office (DMO, an executive agency of HM Treasury) and the very recently formed Asset Protection Agency (APA, an executive agency of HM Treasury).

3.4 The Treasury's departmental carbon budgets for the period 2008-22 are set out in Table 3.A. These are aligned with existing targets under the Sustainable Operations on the Government Estate (SOGE) framework:

- reduce emissions from offices by 30 per cent by 2020 from 1999-2000 levels; and
- reduce emissions from road vehicles used for administrative operations by 30 per cent by 2020, relative to 2005-06 levels.

Table 3.A: The Treasury's carbon budget for budget periods 1, 2 and 3

	2008-12	2013-17	2018-22
Buildings	32,961	29,784	26,355
Travel	1,116	1,001	905
Total	34,077	30,785	27,260

3.5 As the details of the new SOGE framework are built into the carbon budget allocation from carbon budget period 2 (2013) onwards, the Treasury will ensure that it monitors, reports, and meets the broader and more challenging targets. These reductions in public sector carbon emissions will also deliver financial savings, contributing to the Government's aim of releasing £300 million in energy bill savings by 2012-13 through greater energy efficiency.

3.6 The plan will be reviewed and updated in the next 18 months in order to present the department's new share of the public sector carbon budget, and the revised set of measures being planned to secure both carbon and financial savings.

The Treasury's progress on reducing emissions

3.7 Data from 2008-09 indicate that the Treasury has reduced its carbon emissions per annum from offices by 29.2 per cent below 1999-2000¹ levels, against the 2010-11 target of 12.5 per cent.

3.8 The expected delivery trajectory against the SOGE targets is summarised below:

¹ Baseline set for the Sustainable Operations on the Government Estate (SOGE) framework.

Emissions from offices

Baseline (tonnes CO ₂)	2010-11 target (tonnes CO ₂)	2007-08 reported % change
7,932.00	6,940.50	-28.2%
2008-09 reported (tonnes CO ₂)	2008-09 reported % change	2010-11 forecast % change
5,617.71	-29.2%	-28.1%

Emissions from road vehicles

Baseline (tonnes CO ₂)	2010-11 target (tonnes CO ₂)	2007-08 reported % change
258.60	219.81	-41.7%
2008-09 reported (tonnes CO ₂)	2008-09 reported % change	2010-11 forecast % change
120.98	-53.2%	-54.8%

3.9 Based on year-on-year falls in emissions to 2007-08 and an assessment of having sound carbon management systems, the Treasury group was awarded the Carbon Trust Standard for all of its UK operations. This includes emissions from the estate and all transport used by officials and Ministers. Independently assessed, the Carbon Trust Standard provides a robust, objective and consistent methodology for assessing organisation carbon performance. It certifies that the Treasury is measuring, managing and reducing its carbon footprint and has made real emissions reductions year-on-year.

Reducing emissions from our estate

3.10 A summary of the office estate is set out in Table 3.A below:

Location	Total net internal area (NIA) M ²	Tenure	Managed
1 Horse Guards Road, London	22943	Freehold	Under a PFI contract
Rosebery Court, Norwich	6373	Leasehold	Under a facilities management contract
Alexandra House, Leeds	582	Leasehold	By the Landlord
Eastcheap Court, City of London	1700	Leasehold	By the Landlord
Royal Liver Building, Liverpool	2385	Leasehold	By the Landlord

3.11 The total areas above include, where applicable, areas occupied by other public sector tenants, the facilities management provider, and vacant space. However, generally environmental data relates only to those areas solely occupied or controlled by the HM Treasury group.

3.12 In the case of the leasehold properties, the group works (with other tenants where appropriate) to influence landlords. In the past some data has not been readily available but this picture is gradually improving as landlords come to understand the relevance and importance of environmental performance to government departments.

3.13 A detailed report by the Carbon Trust in 2007 set out a number of recommendations for carbon emission reductions at 1 Horse Guards Road, which have all been successfully implemented, including:

- improved heating, hot water and air handling controls;
- optimising plant time control settings; and
- reducing high night and weekend base electrical load.

3.14 It is anticipated that the measures put in place over the last few years will produce significant reductions in future years. A review of the remaining Carbon Trust recommendations is currently in hand and, subject to resources and value for money considerations, implementation may take place in 2010-11.

3.15 Additionally, to enhance monitoring and data quality for utilities and to improve reaction times at 1 Horse Guards Road, automated meter readers have been installed and, funded by DECC's Low Carbon Technology Programme, these will be linked in to the Building Management System and sub-meters will be installed. Enhancement work to the air conditioning plant is also continuing to further improve its performance.

3.16 A range of carbon reduction initiatives have also been implemented at Rosebery Court, Norwich, including installation of automated meter readers, air recirculation, split air conditioning units in server rooms and test rooms, and more proactive building management by our FM provider. Additionally, sub-meters are to be installed under the DECC programme mentioned above, Time Zone controls are being put on heating fan coils to enable separate temperature adjustments in different areas and sensor-activated taps are being considered as a water saving measure.

3.17 Buying Solutions, whose main office is in the Royal Liver Building, Liverpool, is planning over the next year to implement its own Environmental Management System to ISO14001.

Greening the Treasury IT

3.18 The Treasury has a major IT improvement programme, Fast Forward, which will make a range

of IT changes using the Cabinet Office FLEX shared service, that will improve the sustainability of IT systems. Through 2010 the programme will migrate IT operations to the FLEX commercial data centre, shared with other government organisations. The migration activity includes reducing the number of physical servers by using more resilient and efficient 'virtual' servers. Further improvements are anticipated through:

- shared printing and printer consolidation to reduce the total number of printing devices;
- pull-printing, giving the opportunity to reduce paper consumption as final copies are activated from any printer as required, thereby reducing mistaken or forgotten printing;
- deployments of 'thin client technology' as part of the 'confidential' Flex network, which draw significantly less power than the average desktop; and
- the use of laptops, ensuring PCs are stored disconnected from the mains when not in use and enabling people to work with laptops at meetings and other events in alternative locations rather than printing papers.

3.19 The DMO completed a similar data-centre/virtualisation move in 2009, for a smaller server estate. Continual improvement at DMO includes moving to virtual PC technology and upgrading the telephone switch services to complement the overall lower energy consumption/output strategy.

Future trends

3.20 In planning carbon reduction measures over the last one to two years, it was assumed that the Treasury estate would operate under normal usage conditions. However, the increased workload of the Treasury arising from the financial crisis and global economic downturn resulted in significantly increased occupancy and demands on its buildings and services, particularly at 1 Horse Guards Road. This led to a small increase in energy consumption and emissions in the final quarters of 2008-09.

3.21 Despite these exceptional circumstances, estate rationalisation and the implementation of the Carbon Trust recommendations has ensured that emissions have fallen overall. The Treasury will continue to monitor the effects of increased usage of 1 Horse Guards Road, but remains confident of maintaining a steady improvement in carbon reduction performance as the implementation of the Carbon Trust report recommendations takes full effect. The Treasury will also be participating in the Carbon Trust's new collaborative carbon management programme, which will assist in the identification of further opportunities (e.g. further work space efficiency) and improving organisational learning.

Sustainable procurement in the Treasury

3.22 The Sustainable Procurement Action Plan (SPAP) will be updated to build on previous commitments, detailing the ways the supply chain can contribute to achieving the department's sustainability targets, and will be implemented by Group Procurement over the course of 2010. The measures include:

- using the Sustainable Procurement Task Force Flexible Framework as a measure of "where are we now?" and "where would we like to get to?" with respect to our sustainable procurement behaviours;
- setting and detailing the objectives and priorities for the medium and long term;
- measuring progress against the SPAP and against the milestones in the Sustainable Procurement National Action Plan; and
- working in partnership with our suppliers and their networks to identify and implement measures that will contribute to achieving these objectives and priorities.

4 Adapting to climate change

Challenges

4.1 In order to take effective action on climate change, it is necessary to have an understanding of the costs of the impacts the changing climate will bring as well as how best to mitigate the impacts including adaptation to the changes that are inevitable over the coming decades. In 2005, the Treasury commissioned Lord Stern to lead a major independent review of the economics of climate change, which reported in 2006. Amongst other things, the Stern Review¹ made it clear that adaptation will be required to reduce the costs and disruption caused by climate change, particularly from extreme weather events such as storms, floods and heat waves.

4.2 The Government's response to the Stern Review has been comprehensive, with the policies and mechanisms already in place complemented by new policies and actions across a range of sectors. Detailed analysis building on the Stern Review has been, and continues to be, produced by the Government to support the development and implementation of new policies.

4.3 As set out in Chapter 1, the Climate Change Act 2008 provided the Government's climate change policies with a legal framework. To address climate change impacts, the Act established a Sub-Committee on Adaptation and requires, amongst other things, that a UK wide climate change risk assessment must take place every five years and a national adaptation programme be established and reviewed every five years.

The impacts of climate change in the UK

4.4 The climate of the UK is set to change significantly this century. *UK Climate Projections*² published by Defra in 2009 project that all areas of the UK will get warmer, more so in summer than in winter (Figure 4.A, 4.B). There will be little change in the amount of precipitation that falls annually, but it is likely that more of it will fall in the winter, with drier summers, for much of the UK. Sea levels will rise, and to a greater degree in the south of the UK than the north. There will be increased incidences of extreme events driven by increased energy in the atmosphere and altered weather patterns.

4.5 The UK will need to adapt in order to reduce the costs and disruption caused by climate change. Early action to manage the risks could greatly reduce associated costs to the economy. The Association of British Insurers estimates that at least 80 per cent of the additional costs of climate change could be avoided by taking action now to manage the UK exposure to extreme events through weather-proofing buildings, flood protection, and controls on development in flood plains.

¹ Stern Review: The Economics of Climate Change, HM Treasury (2006).

² Climate change projections, version 2, UKCIP, Defra (2009).

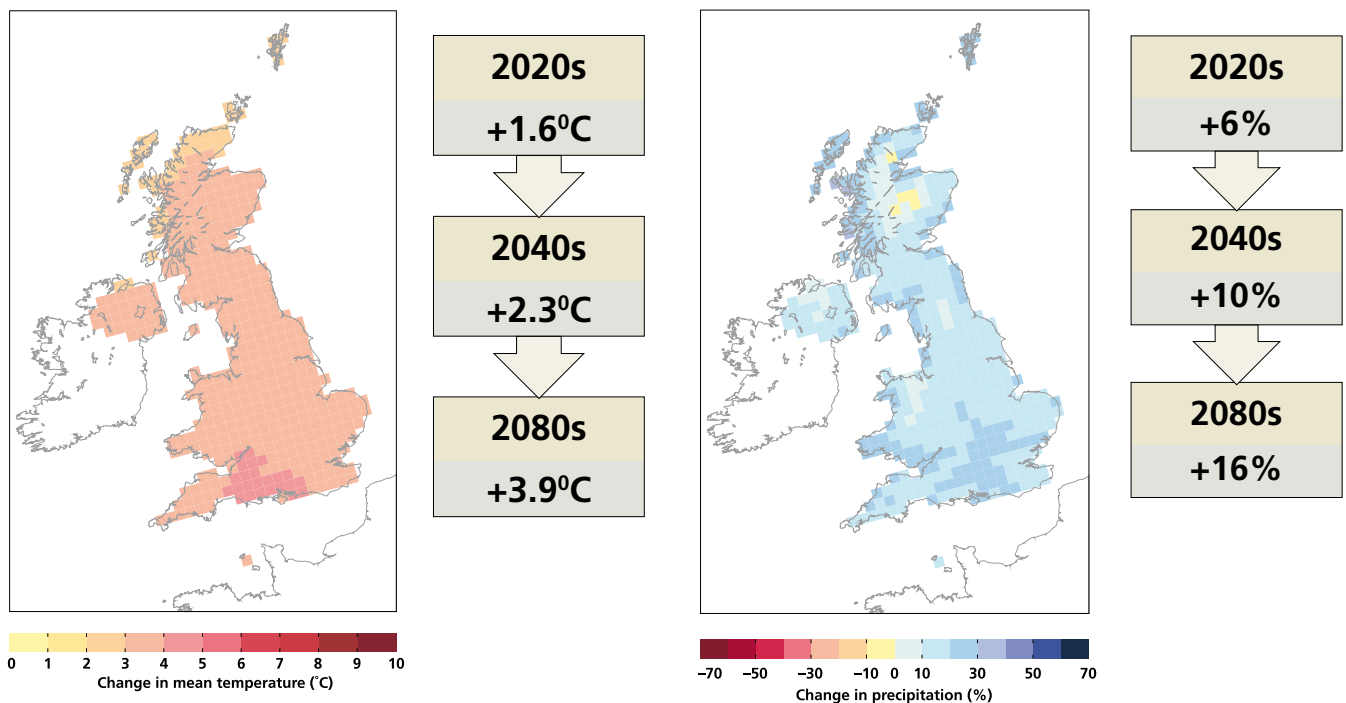


Figure 4.A: (Left) Central estimates of the average regional summer (June, July, August) temperature rise in the 2080s are between 3 and 4°C. Also shown are central estimates of average summer temperature increase through time, for a medium emissions scenario, for the South East of England in the 2020s, 2040s and 2080s.²

Figure 4.B: (Right) Central estimates of regional average winter precipitation change are projected to be in the region of +14% (NE) to +23% (SW), in the 2080s. Also shown are central estimates of average winter rainfall through time, for a medium emissions scenario for the North West of England for the 2020s, 2040s and 2080s.²

4.6 The Government is working to ensure that a framework for adaptation exists to provide information and guidance for people and businesses, that planning and building regulations are appropriate to deal with expected climate impacts and that public and private investment decisions, particularly long-term investments, reflect future climate risks.

4.7 A UK Climate Change Risk Assessment (UK CCRA) is being prepared for 2010-11 and a national adaptation programme will be published by 2012, following advice from the Committee on Climate Change. The UK CCRA and accompanying economic analysis will inform detailed consideration of climate change risks and policy development.

4.8 There are likely to be macroeconomic impacts from taking action to adapt to climate change. For example, UK inflation may be affected by fluctuations in global commodity prices and the costs of investment by companies in their operations and infrastructure will put added pressure on consumer prices.

4.9 On the other hand, sector specific effects will bring both opportunities and risks to the UK economy. Competitiveness of UK industry may be affected – depending on the response to adaptation and specific changes to local climate, the UK economy may be better able to adapt than some and retain or build on its competitiveness; alternatively, the UK could find it more difficult to

adapt than some economies placing us at a relative disadvantage.

4.10 In agriculture, adaptation will bring changes to farming practices; this may include changes in the types of crops grown and animals kept, as well as impacts on the seasonal yields of both over the medium to long term. UK tourism may benefit from projected increases in average temperatures and lower rainfall in summer.

4.11 Insurance can play a prominent role in helping the UK economy adapt, covering risks of crop failures, floods and heat waves for example. However, as long as climate impacts are uncertain, insurance companies may misprice for coverage or refuse to accept risk. Budget constraints, inertia and cultural factors may inhibit people from adapting in the short term and insurance cover is not universal. A challenge for future development is to ensure that the regulatory framework remains sufficiently flexible to encourage insurance markets to develop innovative products that encourage those at risk to adapt as the climate changes. This needs to be balanced with the need to ensure the resilience of the sector.

4.12 Much of the investment made in adapting to climate change will be made by the private sector. Nevertheless, the Government plays a crucial, but diverse role in the area of resilience of public infrastructure and utilities through funding, regulating and in some cases directly providing services. Some spending decisions have already been made as a result of exposure to the current climate, e.g. in the provision of additional resources for defences against flood and coastal erosion.

4.13 Flooding or heat waves could have immediate costs for the public sector as it manages the situation and provides assistance to those put at risk or directly affected. The floods of 2007 cost the public sector over £200m and in future it will be important to make sure adequate resources are available to ensure a swift, cost-effective response to such extreme events. In addition to the need for immediate

recovery response, support may be needed to help repair infrastructure and other damage, to finance relief payments and to increase spending on social payments arising from economic disruption.

4.14 Heat waves are likely to lead to wider occurrence of problems such as heat exhaustion, while more frequent droughts may cause more water shortages (particularly in the South East), possibly increasing the demand for services for vulnerable groups such as the elderly and disabled. Some vulnerable sectors of society may require additional assistance to adapt their homes, being unable to take steps or to afford to do so themselves.

Economics of adaptation and the evidence base

4.15 In order to adapt to the changing climate, it is necessary to reduce vulnerability to climate change and variability, thereby reducing negative impacts, and, to enhance the capability to capture any benefits.¹ Adaptation incurs upfront costs but it also reduces the damage from climate change. Even after taking actions to adapt, there will almost certainly be residual damage, which could be considerable. The gross benefit of adaptation is the damage avoided. The net benefit is the damage avoided, less the cost of adaptation (Figure 4.C). The ideal (efficient) adaptation strategy is to minimise the combined total of residual damages and the costs. Acting to mitigate costs, adaptation can also offer opportunities to adjust economic activity in vulnerable sectors or even have potential for new or expanded activities in other areas.

4.16 Adaptation operates in two main ways.³ On a first level, adaptive capacity is built by creating the information and conditions that are needed to support adaptation. This includes understanding the potential impacts, identifying vulnerabilities, testing responses and building resources needed to implement measures. The next stage is to take steps to reduce vulnerability to climate risks such as

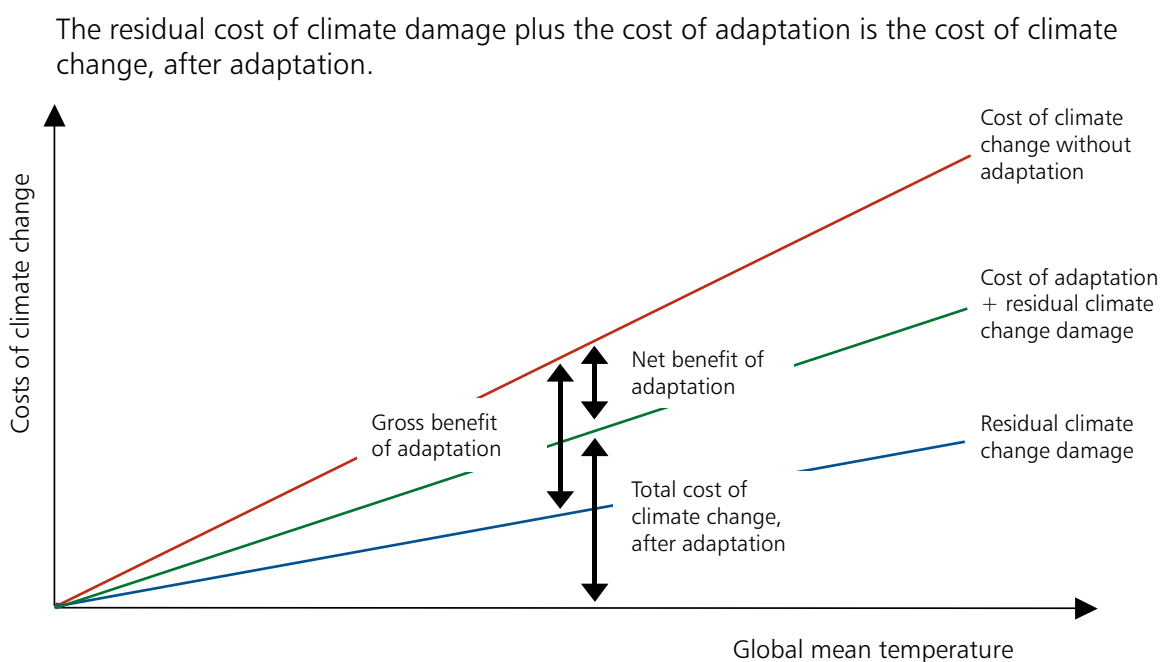
³ Measuring Progress, UKCIP, Defra (2005).

investment in physical infrastructure or to exploit any opportunities where the benefits outweigh the costs, such as the potential to grow new crops.

4.17 Many of the costs of adaptation will be borne directly by the private sector as individuals and firms respond autonomously – i.e. without external intervention – to changes as a result of the changes in their physical environment or market and other circumstances. Other adaptive responses will need to be taken forward through careful planning for the long term, e.g. major infrastructure such as flood defences. Climate variability, and especially extreme events, will provide important signals, together with the dissemination of knowledge and information. Adaptive capability is related to income and capabilities. Many, especially smaller, decisions will involve a measure of habit made on short time-scales with small amounts of resources, which may limit the extent to which adaptive action tends towards maximum socio-economic net benefits. The extent to which society can rely on autonomous adaptation to reduce the costs of climate change defines the need for further policy.¹

4.18 Some decisions will be made in formalised contexts, such as business investment or local government planning.⁴ Authorities and businesses will want to apply traditional decision support tools, such as cost/benefit analysis, cost-effectiveness analysis and multi-criteria analysis. However, there are a number of analytical and policy challenges associated with estimating adaptation costs and benefits. First, adaptation actions are often embedded within responses to a wide range of criteria, which in many cases are more influential; it may not be feasible to find an efficient adaptation action when other factors dominate. Adaptation costs can increase considerably depending on the degree of future-proofing added to the direct response to climate change. Uncertainty in climate change projections and the timing of actions will influence adaptation costs and benefits. There might also be differences between local and economy-wide consequences of measures.

Figure 4.C: Adaptation and the costs of climate change.¹



⁴ S Agrawala and S Fankhauser, editors, *Economic Aspects of Adaptation to Climate Change – Costs, Benefits and Policy Instruments*, OECD (2008).

4.19 Decisions about specific investments in actions where climate risks need to be considered require a knowledge of the relevant costs and benefits of taking adaptation into account. In the UK, there is information on climate change risks and impacts spanning all sectors.^{5 6} Nearly all of this work uses consistent climate projections, and usually consistent socio-economic scenarios, from the UK Climate Impacts Programme (UKCIP). However, while quantitative assessments have been undertaken for many sectors in the UK, including health, flooding, water resources, energy, agriculture and some aspects of biodiversity, quantification is still incomplete and covers a sub-set of climate parameters and risk/impact endpoints. Some sectors, such as transport, business and marine, are not as well studied and many areas remain challenging, e.g. full impacts on biodiversity and ecosystem services. In many cases, only qualitative information is available for potential risks and impacts.

4.20 There are other data issues. Very few studies have considered the valuation of impacts. Quantitative data on cross-sectoral, distributional and indirect effects of climate change at the national level are poor. There are almost no studies of the wider economic effects (multi-stage impacts through the economy, aggregated macroeconomic effects and how international economic impacts will affect the UK).

4.21 It is clear that adaptation actions in some sectors can be implemented at low cost, for example agricultural practices and behavioural adjustments such as increased water use efficiency.⁴ Other adaptations involve infrastructure measures such as water storage and flood defences where costs are high. However, compared with climate risks and impacts, information on the costs of adaptation actions is much more limited and unevenly

distributed across sectors, restricting the applicability of cost-benefit analysis.

4.22 For analysis relying on cost-effectiveness measures rather than cost-benefit ratios, there are also difficulties as there are no accepted metrics for assessing the effectiveness of adaptation measures, as opposed to mitigation where reductions in greenhouse emission levels can be used.

4.23 In order to address some of the evidence and analysis gaps, a UK Adaptation Economic Analysis (AEA) is being carried out, and will follow publication of the UK CCRA in 2010-11. The AEA will investigate a range of methods including cost-benefits analysis (which focuses more on short-term measures) as well as cost-effectiveness analysis, multi-criteria analysis and scenario-based approaches amongst others with various strengths and weaknesses.⁶

⁵ Metroeconomica Limited, Climate Change Impacts and Adaptation: Cross Regional Research Programme - Quantify the Costs of Impacts and Adaptation, Defra (2006).

⁶ Metroeconomica Limited, Literature Review – Scoping Study for a National Climate Change Risk Assessment and Cost-Benefit Analysis, Defra (2009).

5 Adaptation and the Treasury

Introduction

5.1 This chapter considers how climate change will affect the Treasury Group's own policies and responsibilities, processes and estates, its strategy for responding to the risks identified, and how it is helping the UK to adapt. It also describes what the Treasury is doing to ensure that it has the capability to address these issues.

5.2 In its role as an independent office of the Treasury, the Office of Government Commerce (OGC) is tasked with delivering transformation of government procurement, and with driving up standards and procurement capability across central government, including the aim of making these processes sustainable, taking into account the need to adapt to climate change.

5.3 As set out in Chapter 1, the Treasury has two Departmental Strategic Objectives (DSOs) that set out its policy objectives:

- to maintain sound public finances; and
- to ensure sustainable economic growth, well being and prosperity for all.

5.4 These DSOs govern the Treasury Group's roles and responsibilities in relation to adaptation as discussed below. Priorities identified for action on adaptation within the Group are listed at the end of this chapter.

Implications for economic growth

5.5 The Treasury is tasked with ensuring high and sustainable levels of economic growth, well-being and prosperity for all. It does this by supporting low inflation, promoting the efficiency and fairness of its fiscal system and stable global financial markets

while pursuing increased productivity and efficiency. As part of this remit, the Treasury is committed to protecting the environment in an economically efficient and sustainable way.

5.6 Responding effectively to the challenges presented by climate change requires the Government to ensure that market frameworks are set to encourage investment. The Treasury's role in maintaining a stable macroeconomy is key to enabling well-informed decisions on investment in infrastructure.

5.7 The costs to the economy related to adaptation activity are:

- a. **Direct costs** for consumers and business of maintaining sufficient levels of long-term adaptation across business and society (stimulated through a range of policy instruments);
- b. **Opportunities and costs for specific sectors**, including for:
 - the financial services sector in general in managing the flood and other risks to the City of London, and the opportunities that might arise from investment in adaptation programmes in the UK and overseas; and
 - the insurance industry in managing increased risks and developing new insurance products relating to more frequent and extreme climate events.
- c. **Subsequent knock-on effects** on the economy due to the impact of the primary costs of adaptation on macroeconomic factors such as GDP, inflation;

5.8 The key risks in relation to achieving the Treasury's economic objective are that:

- a. there may be insufficient evidence on the economic impacts of adapting or not adapting to climate change and the economic benefits of adaptation in the UK in order to inform policy development; and
- b. the economy and society are unable to adapt cost-effectively to the change in climate and do not exploit the opportunities.

5.9 Increasing the understanding of the costs and benefits of adaptation will enable the Treasury to better evaluate the risks from climate change to the public finances and economy and inform the appropriate policy response but the evidence base is weak (§4.15). The Climate Change Risk Assessment and accompanying Adaptation Economic Analysis to be published in 2010-11 will improve the evidence to better inform evaluation of climate change risks to the economy and the policy response needed to manage those risks. It will help us to understand whether economic instruments would be beneficial to price externalities, e.g. flood risk, water scarcity, bearing in mind that the Government should only intervene where there are market failures.

Financial Services sector

5.10 The Treasury is specifically responsible for financial services policy, including financial stability, City competitiveness, wholesale and retail markets and the Financial Services Authority (FSA). Financial stability is particularly crucial to macroeconomic stability and is vital to the efficient conduct of monetary policy.

5.11 Financial Stability is a shared objective of the Treasury, the Financial Services Authority and the Bank of England. The Bank is the UK's central bank and is responsible for maintaining stable prices and confidence in the currency and detecting and reducing threats to the financial system as a whole. The UK's official holdings of international reserves of

gold and foreign currency assets are held in a BoE account administered by the Treasury. The FSA is the independent regulator of the UK financial services industry.

5.12 The Tripartite Authorities (the Treasury, the FSA and the Bank) manage, deliver and participate in a business continuity exercise programme to provide assurance about the robustness of business continuity plans, to test responses to particular scenarios that result in major operational disruption, and provide training opportunities, for both the Authorities themselves and the wider financial sector. The 2009 Market Wide Exercise, involving over 80 institutions, explored the impact of a severe weather & flooding scenario, to understand better the likely effect on the sector whilst also providing an opportunity to challenge new strategies that had been developed following the real severe weather events in early 2009. The scenario included disruption to several key infrastructure providers and provided the opportunity to examine the relationship between the Tripartite Authorities and the sector during such an event.

5.13 The 2009 Market Wide Exercise was the first to be based around a severe weather scenario. The relevance of such a scenario has been underlined by real events over the last year, which while fortunately less severe than in the exercise, nonetheless highlighted the importance of robust planning for weather-based disruption by both the public and private sectors. The lessons learned have been diverse and the responsibility for embedding them lies with the respective individual participants. Nevertheless, there are some key cross-sector issues that the Tripartite Authorities will be taking forward through closer examination and consultation with participants, notably: Is home-working a viable solution for anything beyond a short-term disruption; are firms fully aware of the resilience levels of their critical suppliers and is the role of the Tripartite Authorities in a crisis clear, and was it fulfilled as expected?

5.14 The UK insurance markets are well developed for dealing with flooding, which is one of the main climate risks. As climate changes and past weather records become less useful indicators, the insurance industry will have to develop new ways to assess risk while encouraging those at risk to adapt. At the same time, the industry will have to develop new products. While some insurance products are being developed to cover climate risks other than flooding, overall the picture is fragmentary. For example, there is low penetration of agricultural insurance. Future industry development to insure a wider range of climate impacts may require co-operation between industry and the Government to ensure efficiency and that coverage remains widely available.

Promoting well-being and prosperity for all

5.15 Some sectors of society will be more vulnerable to the impacts of climate events and require additional assistance, being unable to take steps or to afford to adapt their homes or insure them against flooding for example, or may be driven into poverty by the increases in the prices of basic commodities as a result of investment by business in adaptation infrastructure etc.

5.16 In developing its strategies to support low-income and other vulnerable households, including many pensioners and disabled, to help them plan and save for the future, the Treasury, along with DCSF and DWP, work to improve standards of living and material deprivation, which includes how low-income households can be supported to adapt to climate change. The Treasury will continue to consider welfare policies, taking account of all pressures including impacts of climate change, as part of the usual processes for the control and review of public spending. Inflationary impacts on benefits, including those that arise from increased prices due to rising adaptation expenditure, are also accounted for in the usual way.

5.17 The Treasury is also working through partnership with the Association of British Insurers (ABI) and through the Financial Inclusion Champions

initiative to increase access to affordable insurance for poorer households. Where there are coverage issues and significant unmet demand in specific areas we will work with industry to look at how these gaps could best be addressed.

5.18 The Treasury works closely with other departments to ensure that climate finance is available to help the poorest countries adapt to the long-term risks associated with climate change. Much adaptation in these countries should be an extension of good economic development practice, reducing vulnerability to climate change by promoting growth and the diversification of economic activity, investing in health and education, and enhancing resilience to disasters. In Dec 2009, the Government announced £1.5 bn of public funding to developing countries over 2010-12, and will pay our fair share of a global effort to raise \$100 bn p.a. by 2020, including through carbon market financial flows.

Maintaining sound public finances

5.19 Sound public finances are essential for the macroeconomic stability needed to give businesses and individuals the confidence to plan and invest for the long term. They also help to deliver low long-term interest rates, supporting businesses' access to new financing and resources for growth. The Treasury manages public expenditure so that spending impacts fairly within and between generations, using the fiscal rules for guidance and ensuring that the tax yield is sustainable and risks are managed.

5.20 The public finances may be impacted in various ways by the need to adapt, e.g.:

- a. longer term risk management require investment for construction and maintenance of common infrastructure, e.g. flood defences, road and rail networks;

- b. extreme climate events lead to a need for welfare, health and economic assistance to households and businesses in some cases, and a need to consider the long-term sustainability of tax receipts; and
- c. value for money considerations in public expenditure require climate vulnerability to be taken into account in planning and financial decisions made by the Government, including procurement processes and developing and maintaining its estates.

5.21 The key risks in relation to maintaining sound public finances are that:

- a. long-term costs of adaptation to climate change might not be managed within a sustainable level of total public spending; and
- b. public finances might lack capacity or flexibility to respond to consequences of more frequent and extreme climate events.

Long-term adaptation

5.22 Due to the high degree of uncertainty on the timing and the scale of climate change impacts in the UK, and the wide-range of possible policy interventions, there is a need to prioritise resources effectively. Interventions by the Government need to be focused on those areas where failure to adapt well could ultimately lead to irreversible damage or costly retrofits, expose society to imminent risks, or raise serious equity concerns.

5.23 The Treasury considers proposals on medium to long-term expenditure as part of the usual processes for the control and review of spending. The supplementary guidance developed with Defra for the Green Book (see §5.33) is available to help other departments take account of adaptation-related costs and benefits in policy proposals and the procurement of infrastructure, including that procured through PPP/PFI. Defra and the OGC are also developing guidance setting out why and how

climate change adaptation should be factored into the public procurement process (see §5.41).

5.24 The Treasury regularly reviews the potential impact that long-term developments have on the public finances, including both spending and tax receipts. The 2009 *Long-Term Public Finance Report: an analysis of fiscal sustainability*¹ includes an analysis of the costs of tackling and adapting to climate change on the public finances and concludes that while climate change policies are likely to have economic implications, the indirect pressure on the public finances through economic growth is likely to be modest.

5.25 The Treasury also encourages departments to look at the use of efficiency savings and reprioritisation where possible, for example as highlighted in the Environment Agency's Long-Term Investment Strategy² in the case of flood defences. Nevertheless, The Treasury recognises the importance of flood risk management and has provided substantial uplifts at spending reviews to fund flood defences and adaptation measures. Public expenditure has increased from £427 million in 2002-03 to £599 million in 2005-06, and will rise to £800 million in 2010-2011. This funding will reduce the risk of flooding and coastal erosion for over 145,000 households, and maintain 39,000 kilometres of flood defences around the country. As part of PBR 2008's fiscal stimulus, £20 million of this investment was brought forward to 2009-10, delivering earlier protection for 27,000 homes.

5.26 Defra and the Treasury will continue to work closely to ensure that spending on flood defences strikes the right balance between maintenance, new construction, flood warnings, development control and mapping and provides value for money.

¹ Long-term public finance report: an analysis of fiscal sustainability, HM Treasury (2009).

² Investing for the Future: flood and coastal risk management in England – a long-term investment strategy, Environment Agency (2009).

5.27 A new advisory body, Infrastructure UK, was established in 2009 as a unit within the Treasury. Infrastructure UK will advise the Government on the development of modern, resilient infrastructure in areas such as energy, waste, water, communications and transport, identifying the UK's long-term needs and considering our national infrastructure objectives. As part of its work, Infrastructure UK will take into account the need for resilience to future pressures, including climate change. Infrastructure UK prepared a Strategy for national infrastructure document that was published alongside Budget 2010.

5.28 In the future there may also be demands on finances for assistance in the event of extreme climate events overseas and financial impacts on welfare, health and education spending from climate migrants and refugees coming to the UK. The key to being able to respond in appropriate and timely manners is to ensure that the public finances are resilient and flexible.

5.29 The EU budget accounts for around 2.5 per cent of EU public spend. It is important that the budget takes into account adaptation policy. While Defra leads in the matter of establishing priorities and policy details, the Treasury, along with the Cabinet Office, have a role in helping drive the agenda, due to their oversight of the policy agenda across the budget.

Extreme climate events

5.30 The Government expects to deal with climate related events and will use the experience it has gained from past events such as the 2007 floods to ensure that assistance can be provided.

5.31 For example, the Treasury continues to work with other Departments to improve financial management. This will ensure Departments can reprioritise resources to deal with the immediate impacts of extreme events while balancing the needs of the wider public sector. The Treasury will act swiftly to provide additional resources or relax

budgeting constraints where the costs of response and recovery cannot be met within existing provision.

5.32 In addition, the Government has been working with the ABI to encourage greater uptake of property-level flood protection measures and resilient repair of properties after a flood – both important adaptations for preparing the country's housing stock for the impacts of increased flood risk. A renewed Statement of Principles ensures that insurance from flood risk is widely available and keeps the risk of compensating the majority of those affected by flooding in the private sector.

Accounting for adaptation in government decision making – the Green Book

5.33 The Treasury's Green Book³ provides guidance on assessment of proposed policies programmes and projects, including both spending and regulatory proposals and the conduct of appraisal in impact assessments. Supplementary Green Book guidance has also been produced on discounting for long term policies with potentially very large virtually irreversible adverse impacts in over 50 years time. In addition, supplementary Green Book guidance⁴ on how to take account of expected climate change and its associated risks and uncertainties when appraising proposals was published in June 2009. All of this guidance is available on the Green Book web site.²

5.34 The aim of the guidance is to support public bodies in taking full account of the effects and uncertainties in climate that will result from the existing historically generated and expected future greenhouse gas emissions. Green Book supplementary guidance on sustainability issues will remain the subject of regular consideration to ensure that it remains aligned to developing knowledge and the needs of public policy determination. The Green Book should be used as the basis for all policy development and appraisal to provide objective

³ The Green Book – Appraisal and Evaluation in Central Government, www.hm-treasury.gov.uk/data_greenbook_index.htm

⁴ Accounting for the Effects of Climate Change,

www.defra.gov.uk/environment/climate/documents/adaptation-guidance.pdf

transparent decision support information and where possible make an holistic assessment of the whole life costs and benefits to UK society of all proposals.

5.35 A filter accompanies the guidance on accounting for climate change to assist users to assess whether or not policies or spending proposals are likely to be affected by climate change and if so directs them to the guidance on identification and quantification of climate change risks and uncertainties. The guidance then covers generation of options to address risk and uncertainty and explains how to appraise the options and then to monitor and evaluate outcomes. Options include incorporation of flexibility into design, allowing for future adjustment to cope with variations in the severity of effects; increasing resilience through designing projects to tolerate a wider range of climatic conditions; identifying measures that would also be beneficial for current climate, or cost little to implement; and using so called “real options analysis” to quantify the benefits of delaying certain decisions until more information is available.

5.36 It is planned to review departments’ use of the guidance in 2010, by which time decision-support mechanisms such as the Robust Decision Making (RDM) framework may have been explored.

Sustainable Operations on the Government Estate

5.37 The Government needs to lead by example and ensure its own estate is resilient to the current and future impacts of climate change. Costs to departments will vary depending on the size and nature of department’s estates, the level of adaptation that may be needed and action already undertaken. Ensuring climate change is accounted for in the management of the government estate will help to avoid the need for costly retrofitting at a later date. In addition there may be gains in terms of reduced vulnerability to current climate variability as well as contributing to the long-term sustainability of the estate.

5.38 The OGC has helped Defra to prepare guidance for departments on adapting the government estate to climate change. As part of its revision of the Sustainable Operations on the Government Estate (SOGE) target framework, the Government has committed all departments to implement, monitor and keep under continuous review measures and changes to adapt to climate change by 2015.

5.39 The Government considers an adaptation target within the new SOGE Framework to be the most appropriate way to measure departmental progress on increasing the resilience of their estate to climate change impacts and to demonstrate leadership on adaptation. This also ensures SOGE tackles both aspects of climate change – adaptation and mitigation – consistently. The SOGE Framework sets targets and provides measures for both operations of the estate and sustainable procurement, providing a strategic delivery framework for the Government’s sustainable procurement and operations objectives to deliver real improvements in overall management of its estate.

5.40 With reference to a 2010-11 baseline, each department must reach level 4 preparedness to the impact of climate change by 2014-15 (and maintain this level, with implementation to be assessed in 2015-16 and 2016-17). Departments will be expected to 1) assess the specific climate risks their estates face (e.g. by applying the UK Climate Projections and EA flood risk maps) and 2) assess their level of preparedness for the impacts of climate change and what measures are needed to adapt to the impacts. Progress and monitoring will be undertaken within the SOGE Framework and years 2015-16 and 2016-17 will allow implementation to be assessed.

Government procurement

5.41 The public sector has a vital role in demonstrating and driving demand for resource efficient solutions. By taking on a leading role, it can create confidence among businesses to follow suit. For example, it can help create substantial demand

through its procurement activity, helping to stimulate the supply of resource efficient solutions where it is affordable and demonstrates value for money.

5.42 In January 2010, OGC published a Policy through Procurement Action Plan⁵, which sets out the priority policies that the Government will deliver through public procurement, and metrics for measuring success. The 3 priority policies are SMEs – removing barriers to their participation, skills training, apprenticeship opportunities and tackling youth unemployment, and resource efficiency focusing on carbon reduction. Other agendas will still need to be taken forward on a case-by-case basis.

5.43 Defra and the OGC have developed guidance of relevance to departments, agencies and the wider public sector, setting out why and how climate change adaptation should be factored into the public procurement process on relevant projects such as estates and infrastructure for both new-build and refurbishment. It will be disseminated via existing OGC networks. Defra and OGC will encourage Regional Improvement and Efficiency Partnerships, Government Office Network and the Local and Regional Adaptation Partnership (LRAP) to disseminate it throughout the public sector.

5.44 The guidance will help procurement teams to incorporate climate change risks into drawing up contractual arrangements and decision making. It shows how and why adaptation should be built into departments and all public sector organisations procurement processes, especially for capital build programmes, infrastructure projects, refurbishments, facilities management and ground maintenance. Embedding adaptation in these types of projects is supported by planning policy, building regulations and design standards which are incorporating more environmental performance standards and climate change adaptation requirements.

5.45 Projects should be designed and built to be climate resilient for their expected lifetime, rather than the initial contract period – although the design life will vary from asset to asset. For example, it may be 50 years for a school, 10 years for a road surface or 50-100 years for other types of infrastructure such as a bridge. The public authority should particularly consider the longevity of the project – with particular attention given to projects that have:

1. a long life-span e.g. measures that would be difficult or expensive to do in the future (e.g. retrofitting natural ventilation);
2. thresholds, i.e. whether the project/asset being procured is vulnerable to specific thresholds where climate impacts become intolerable; and
3. flexibility – given the uncertainty over the future climate, climate profiles should be included in contracts so that risk is shared.

5.46 Assessment of the impact of including adaptation in the process should include the financial (e.g. maintenance) and economic costs (e.g. service delays, flooding) that might be avoided, and what other non-monetised costs and benefits have arisen as a result of incorporating adaptation measures.

The Treasury's capability to deal with adaptation

5.47 The Treasury is building its capability to integrate adaptation within its resources, skills and processes in order to manage climate related risks to public spending and the economy. Successful delivery of the Treasury's DSOs depends on being able to identify, assess and manage those risks.

5.48 Over the last year, the Treasury has improved its adaptation resources, skills and processes in various areas. Seminars on UK climate change projections and climate change policy have been held. Key teams, beyond the Treasury Environment Network, with interests in adaptation issues have been identified and were involved in the preparation

⁵ Policy through Procurement Action Plan, OGC (2010), www.ogc.gov.uk/documents/PtP_Action_Plan.pdf

of this adaptation plan. Guidance on including adaptation in Green Book processes was published.

5.49 Leadership. The Treasury's Environment Steering Group (ESG), provides a dedicated forum for senior engagement on environmental policy development and outcomes, including adaptation, monitors progress against the Treasury's DSOs and provides strategic direction and challenge to TEN. The ESG is chaired by the SRO for adaptation – the Director of Public Services and Environment. A dedicated brief on UK Climate Resilience & Adaptation updates the ESG monthly on the progress of policy to ensure that the Treasury senior officials can manage the Treasury contributions to the development of cost-effective and efficient government policies to deal with climate change impact. The annual departmental adaptation plan will keep the ESG informed of priority adaptation issues for the Treasury.

5.50 Policy and Strategy. Aside from ensuring the stability and resilience of the macroeconomy in general and the financial services in particular, the Treasury does not have specific policy responsibilities directly relevant to adaptation. Policy areas relating to climate change and adaptation are primarily led by various departments and are covered by specific spending teams within the Treasury. Energy, Environment and Agriculture (EEA) team is responsible for the control of spending in DECC and Defra, along with domestic adaptation and other aspects of environment, including flood risk management.

5.51 The Treasury is also reviewing the available evidence on the impacts of climate change on the economy and public spending to inform future strategy and policy development. Evidence on climate impacts was used as part of the evidence base to inform planning for the 2007 Comprehensive Spending Review in Defra's settlement for flood risk management and updated 2009 scenarios are now available to support future decisions on climate impact related policy.

5.52 People. The Treasury Environment Network (TEN) works across teams and directorates within the Treasury. It was established in 2008 to strengthen the Department's capability and consistency of advice on environment-related policy, including adaptation. Core teams within TEN are Environment, Energy & Agriculture, Environment & Transport Tax, International Development & Climate Change, European Economic Reform but members are drawn extensively from other teams as well where there is environmental interest.

5.53 In 2009, two seminars were given by Defra on the UK Climate Projections 2009 (UKCP09) to raise awareness of the latest UK projections of climate change impacts and to make climate change a more recognised issue for policy, operational and corporate teams. The TEN induction course includes adaptation and internal seminars are held on climate impacts and adaptation.

5.54 Partnerships. The OGC has a key role to play in addressing adaptation issues in the public sector and works closely with Defra in ensuring that adaptation is taken into account in government procurement (§5.41) and on leading against delivery on the SOGE framework (§5.37), which now includes a measure on adaptation to climate change. The Treasury spending teams work closely with other departments across a range of policy areas, including those where climate change and adaptation issues are important.

5.55 Processes. Through its spending teams, the Treasury ensures that risks associated with climate change are managed cost-effectively and efficiently in government policy as a whole as part of the usual processes for the control and review of public spending.

The Treasury's estates and assets

Estates and assets

5.56 The updated framework for Sustainable Operations on the Government Estate (SOGE), including a measure on adaptation to climate change

and coming into force in 2011-12, is being revised by Defra. Pending this, decisions on major building projects, office moves or refurbishments will be considered within the scope of existing adaptation plans against the targets and mandates of the existing framework.

5.57 The Property Asset Management (PAM) Board, chaired by the Corporate Services Director, develops the overall property strategy, including the drive to achieve SOGE targets, for the HM Treasury group and monitors and reviews progress.

5.58 Through their Environmental Management Systems and Annual Planned Preventative Maintenance Plan (APPMP), the FM providers already take account of the impacts of future climate change in the operations of the two main Treasury buildings, one in London and the other in Norwich. Flooding is considered to be the principal risk in both cases. For example, the ability to pump water from the sub-basement of 1 Horse Guards Road was enhanced during refurbishment in 2000-02.

5.59 The few other premises occupied by members of the HM Treasury group are leasehold and, where appropriate, work is in hand with landlords to address adaptation issues. One of the premises is within the Royal Liver Building in Liverpool, where flooding is also a risk, and the local authority has put flood defences in place.

5.60 The Treasury has robust Business Continuity Management strategies and plans to manage situations where its buildings and services are disrupted and unavailable. These are reviewed and updated annually and this will be a key action for 2010 to maximise the benefit of modernisation activity for the information and communications technology (ICT) and services. By using a Cabinet Office shared-service framework the main data centres will be hosted in high quality commercial sites and the desktop policy will enable remote working from home or other government department offices within the shared service community.

5.61 A comprehensive climate change risk assessment will be developed by the PAM Board in 2010 to enable a Risk Register to be prepared for the whole HM Treasury group. The outputs will draw on best practice across government and will involve close consultations with the wider Chancellor's 'family'.

HM Treasury priorities for action on adaptation

Policies and responsibilities

DSO	Action planned or commenced	SRO	Measure of success	Date start	Target end date
1. DSO1 – Maintain sound public finances	Work with other Departments, seeking appropriate evidence on spending proposals to manage risks or mitigate impacts of climate change.	Director of Public Services and Environment	Risks around adaptation taken into account in decisions where relevant, to ensure stability of the public finances.	ongoing	ongoing
2. DSO2 – Ensure high and sustainable levels of economic growth, well-being & prosperity for all	Use the forthcoming Climate Change Risk Assessment and Adaptation Economic Analysis to better inform evaluation of climate change risks, economic implications and policy response.	Director of Public Services and Environment	Increased understanding of the costs and benefits of adaptation, feeding into policy decisions and leading to reduced risks around economic growth and prosperity.	2010-11	2012
3. DSO2(e) – Supporting fair, stable and efficient financial markets	Jointly with Defra as lead department. Work with the Insurance industry to ensure that climate change risks are borne in the most appropriate and efficient way following the ending of the current statement of principles in 2013.	Director of Financial Services (for HM Treasury work)	Climate change risks are managed in the most appropriate and efficient way post 2013. Cover remains widely available through a system that encourages the implementation of resilience measures and minimises, moral hazard.	ongoing	2013
4. DSO1	OGC to work with other Departments by monitoring their progress on adaptation targets agreed under the revised SOGE framework.	Government's Chief Sustainability Officer	Departments reach level 4 preparedness to the impact of climate change.	2010	2015

Capability building

Gap/weakness identified	Solution/Action	Measure	Implementation date	SRO/ lead team	Completion deadline
Raise awareness of adaptation issues further to put it on an equal footing with mitigation.	Use TEN events and external speakers to broaden knowledge and understanding.	Greater discussion and consideration of adaptation in policy development	2010	Director of Public Services and Environment Environment, Energy & Agriculture lead team	ongoing

Estates

Investment decision	Action to be taken	Deadline	SRO
EMG approval for IT Service provision to be through the Cabinet Office shared service arrangement.	Replace the IT infrastructure with a modern commercial provision that is more secure against climate change threats.	End of FY2010-11	Head of Information and Workplace Solutions
Any future HM Treasury estates and assets decision that requires climate change impacts to be taken into account.	Prepare a list of climate change risks to the estate and carry out a risk assessment ready for inclusion in a risk register and future action plans.	2010	HM Treasury Property Champion

HM Treasury contacts

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